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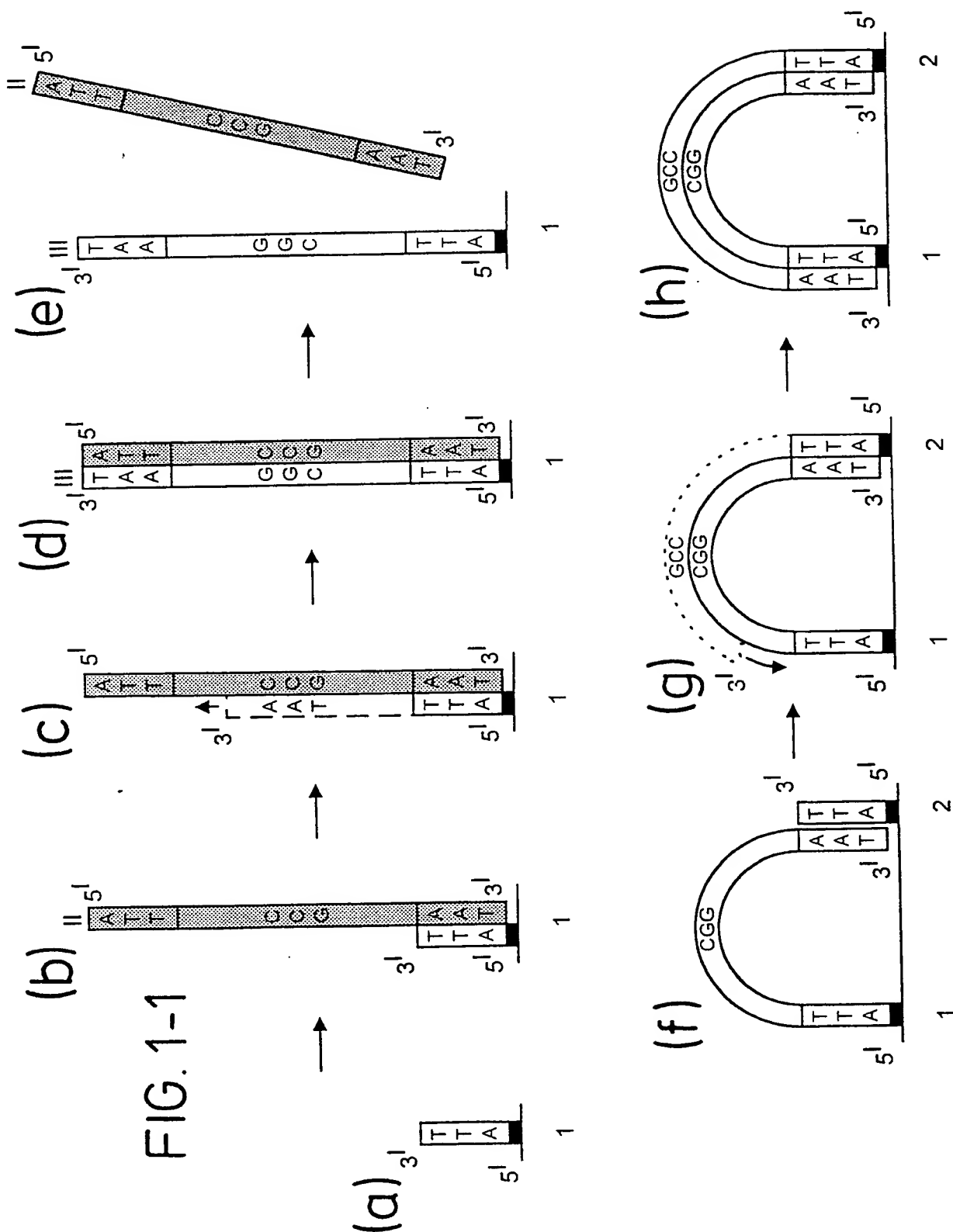
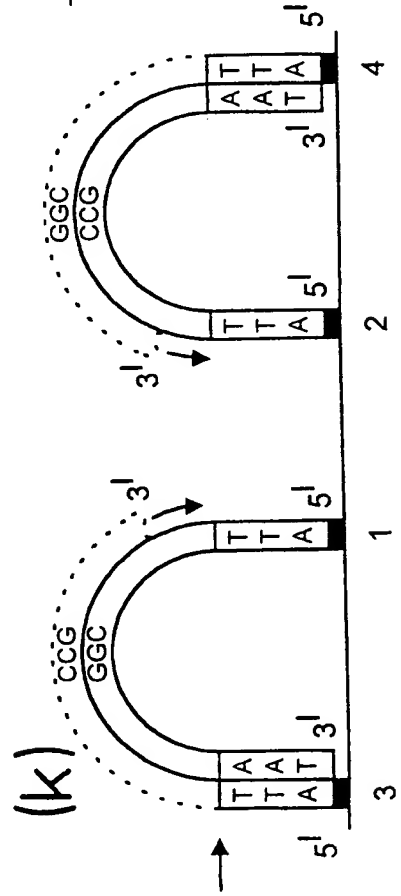
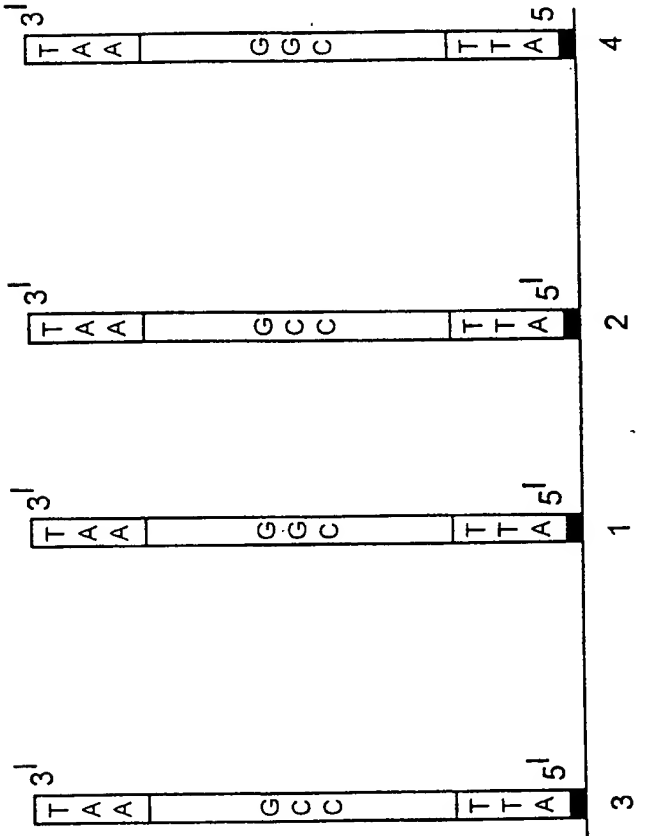
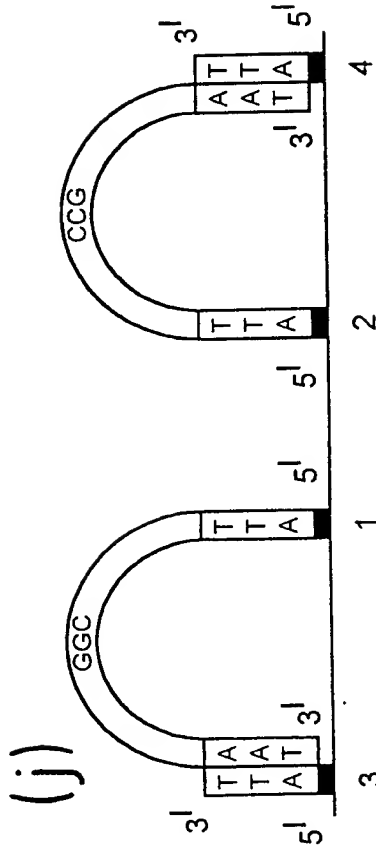
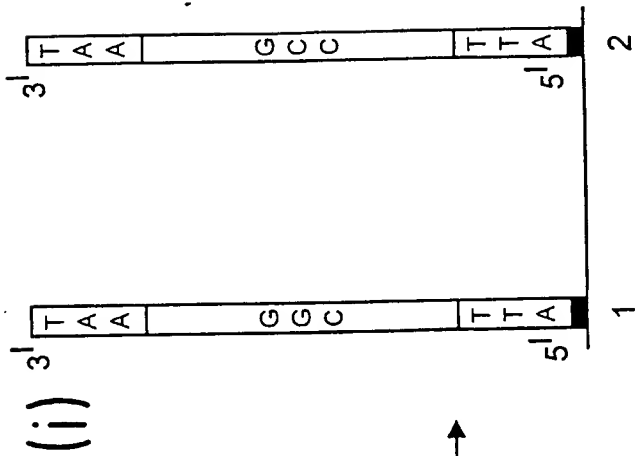


FIG. 1-1

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FIG. 4a

Colony generation on tubes functionalised with oligonucleotide p57 (control). Results of visualisation of fluorescent microspheres. Hybridisation with probe detects 0.10 fmol/tube.

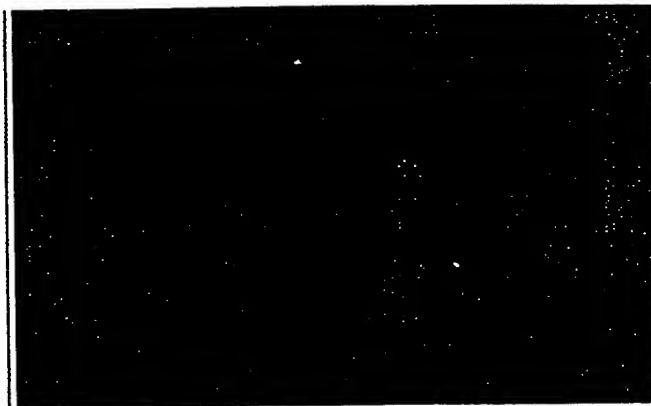
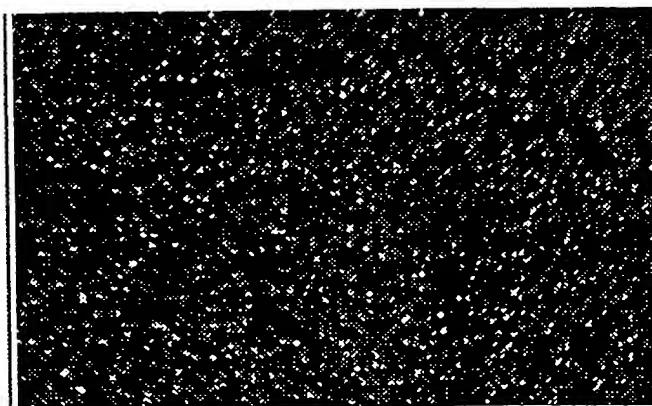
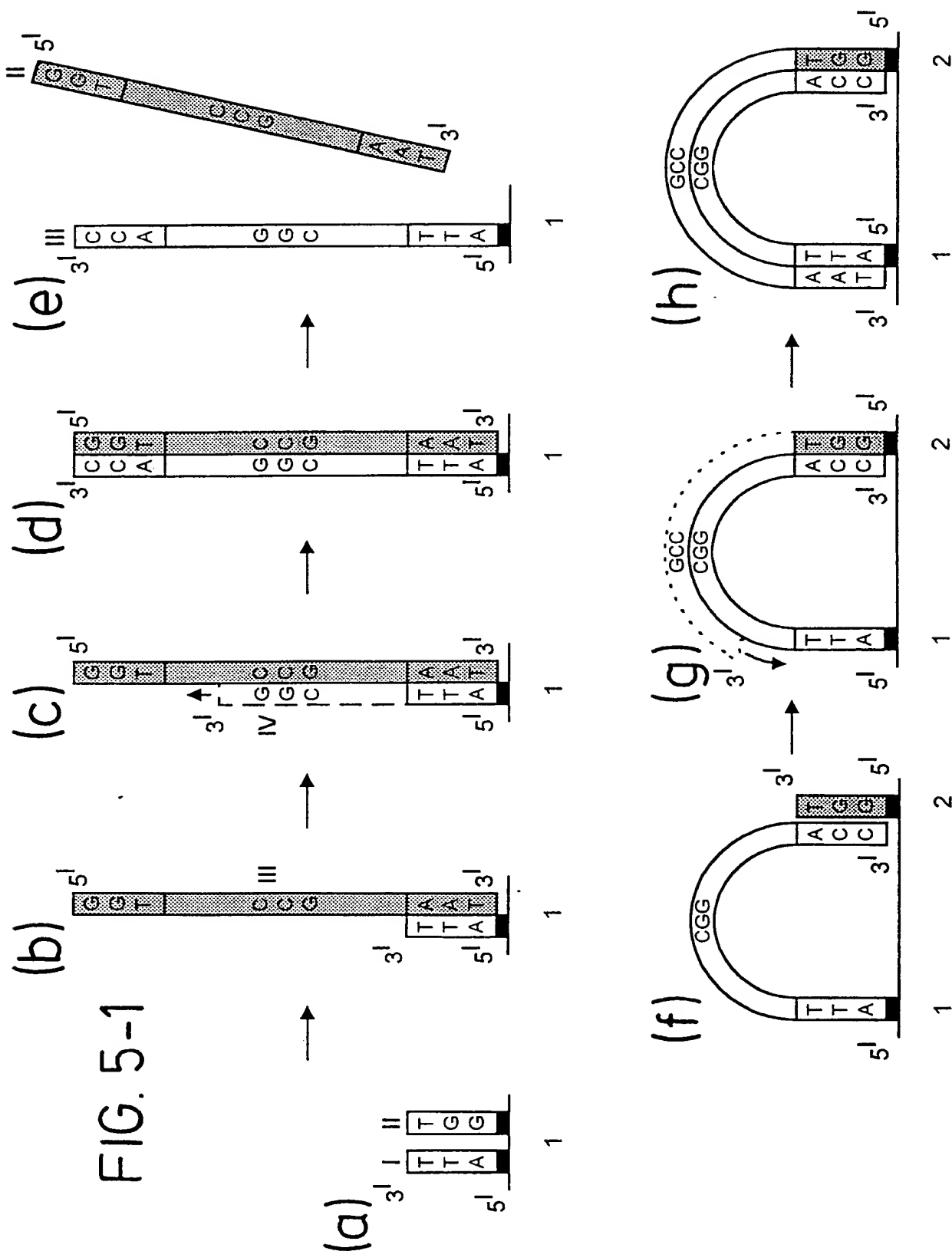


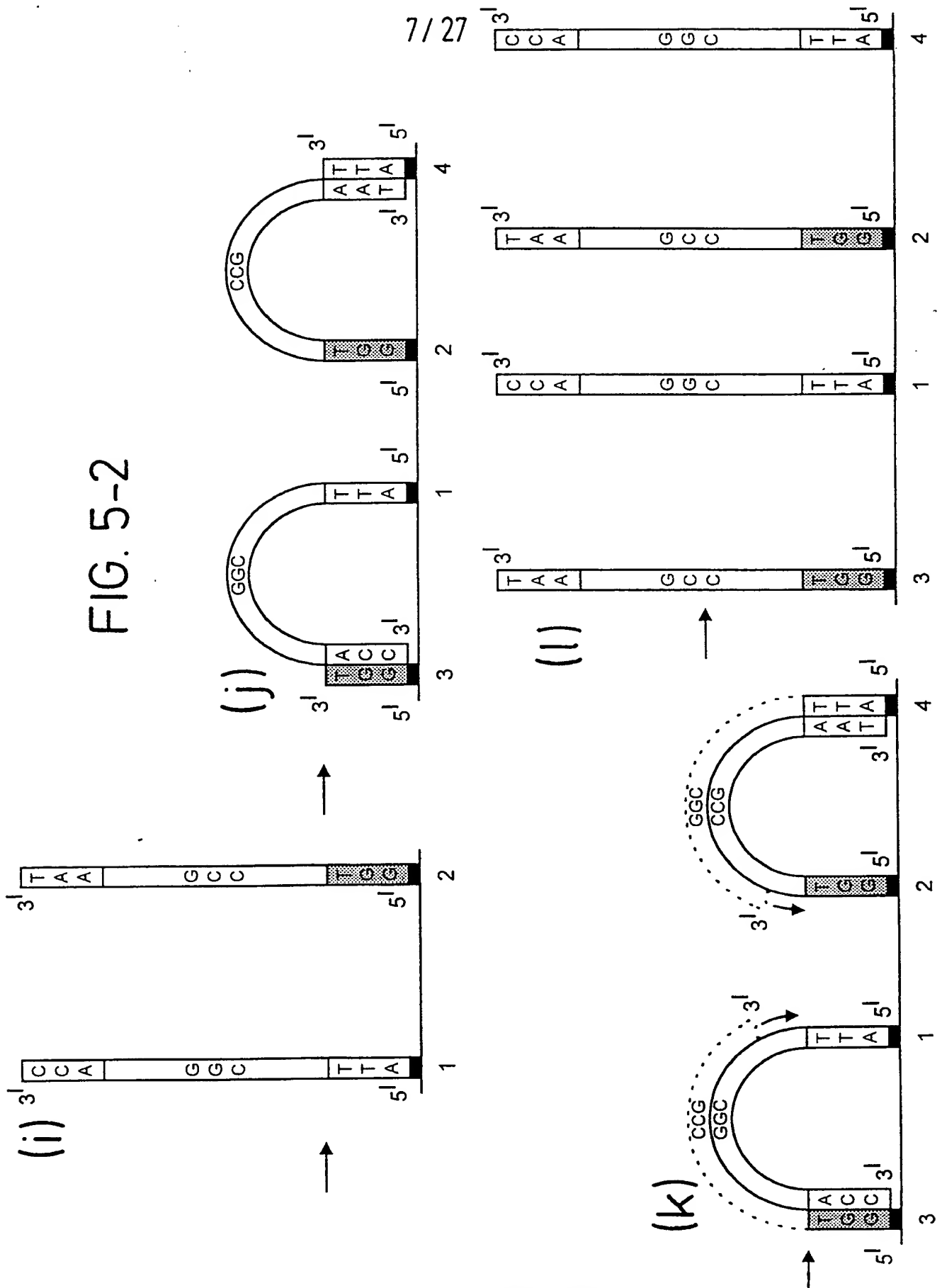
FIG. 4b

Colony generation on tubes functionalised with oligonucleotide p58. Results of visualisation of fluorescent microspheres. Hybridisation with probe detects 6.2 fmol/tube



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FIG. 6(a)

DNA amplification - detection of colonies with DNA intercalating dyes

i) control

ii) with template

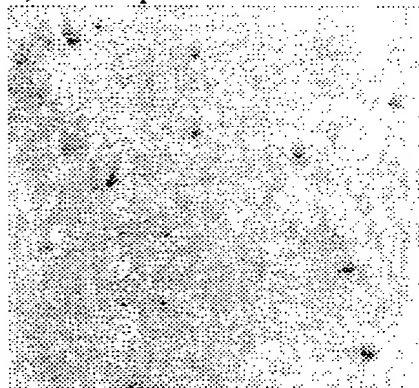
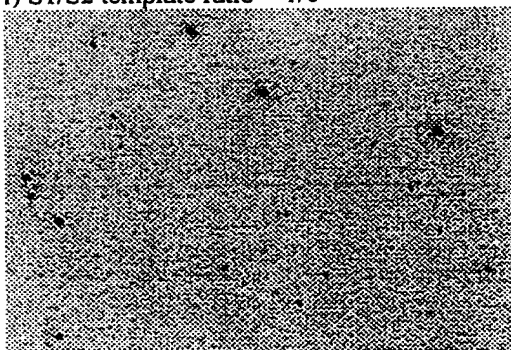


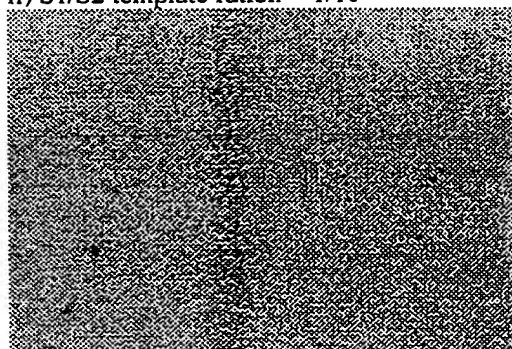
FIG. 6(b)

DNA amplification; detection of colonies by specific probe hybridisation

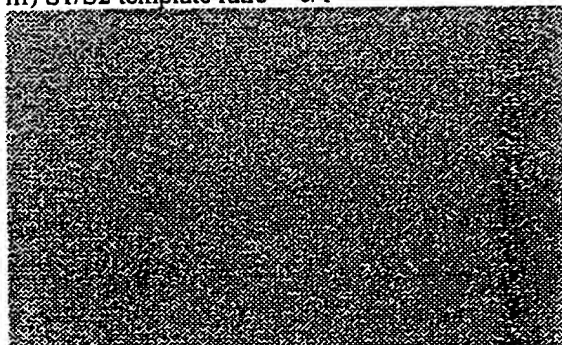
i) S1/S2 template ratio = 1/0



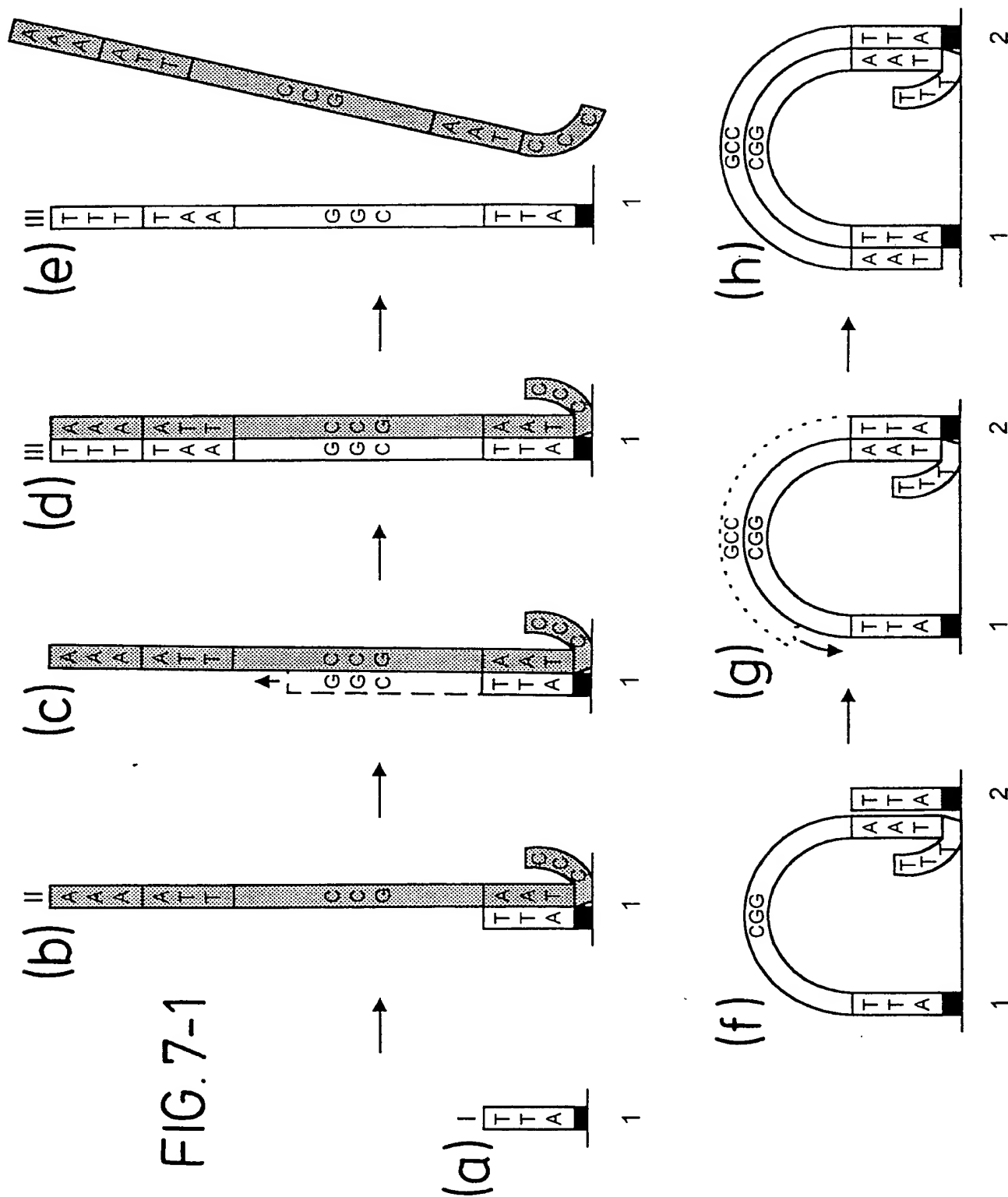
ii) S1/S2 template ration = 1/10



iii) S1/S2 template ratio = 0/1



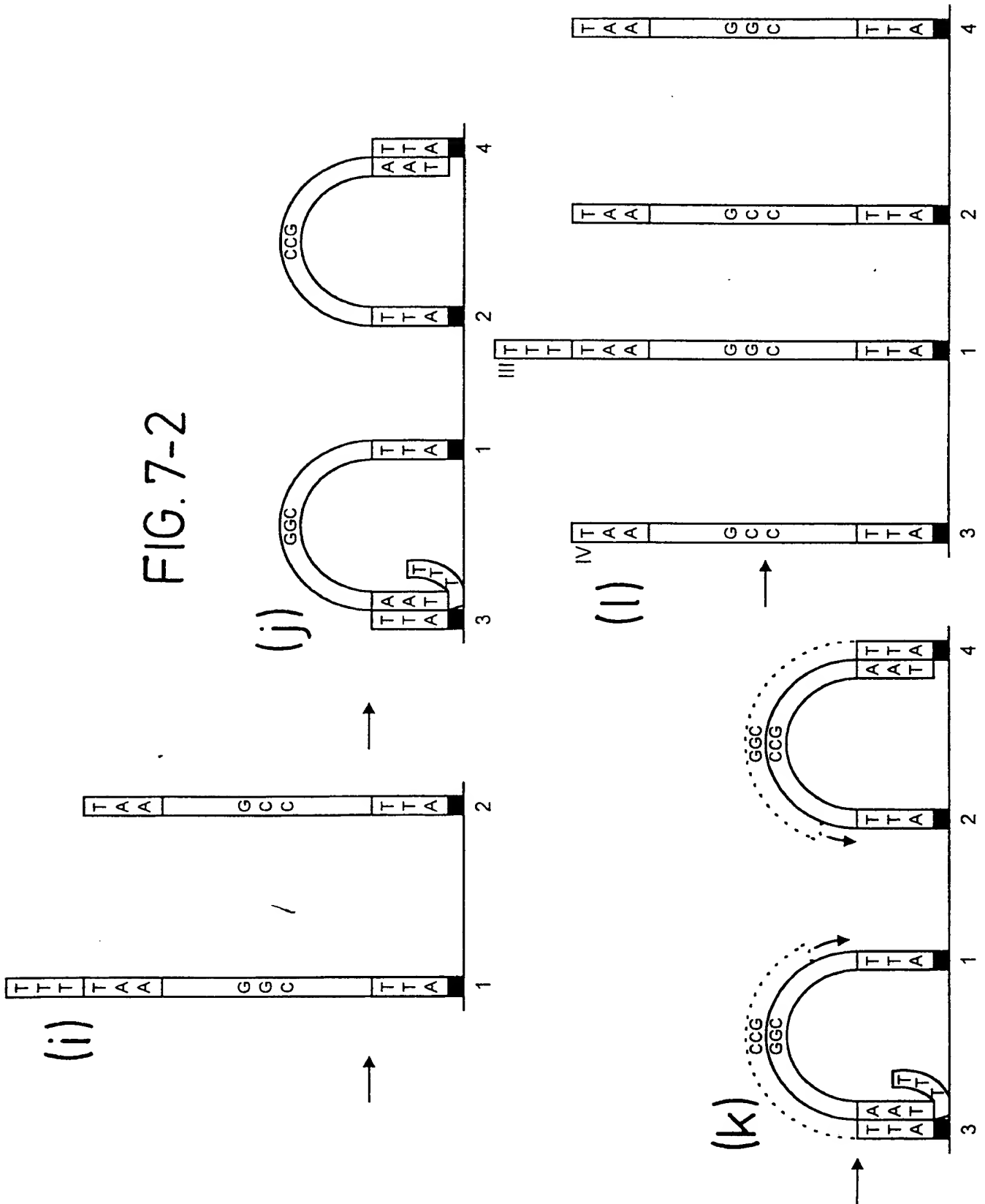
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Genetic Engineering

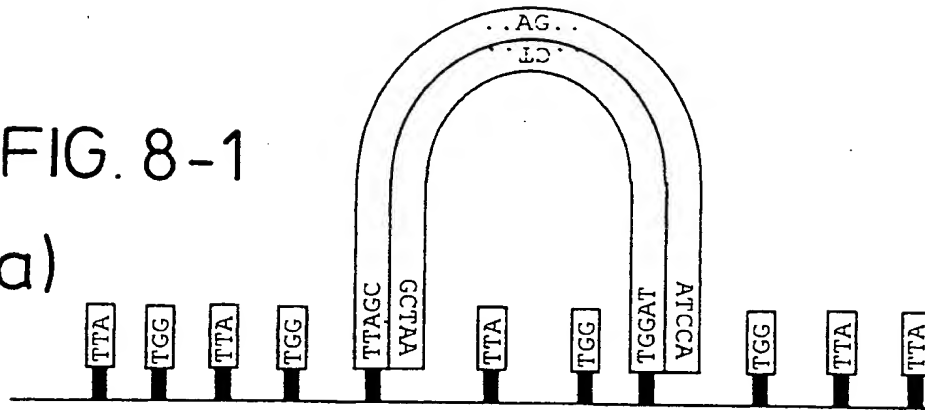
FIG. 7-2



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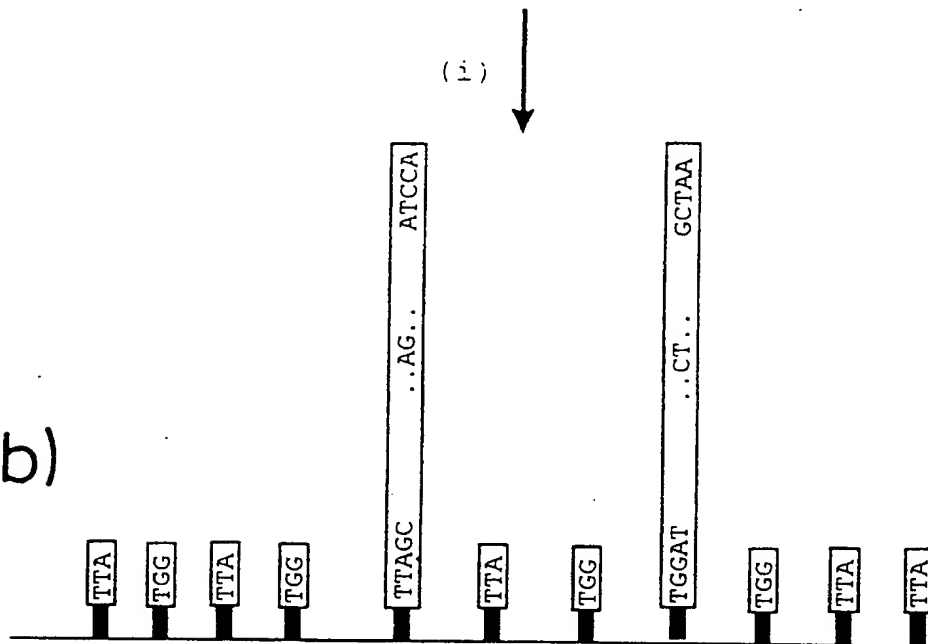
FIG. 8-1

(a)



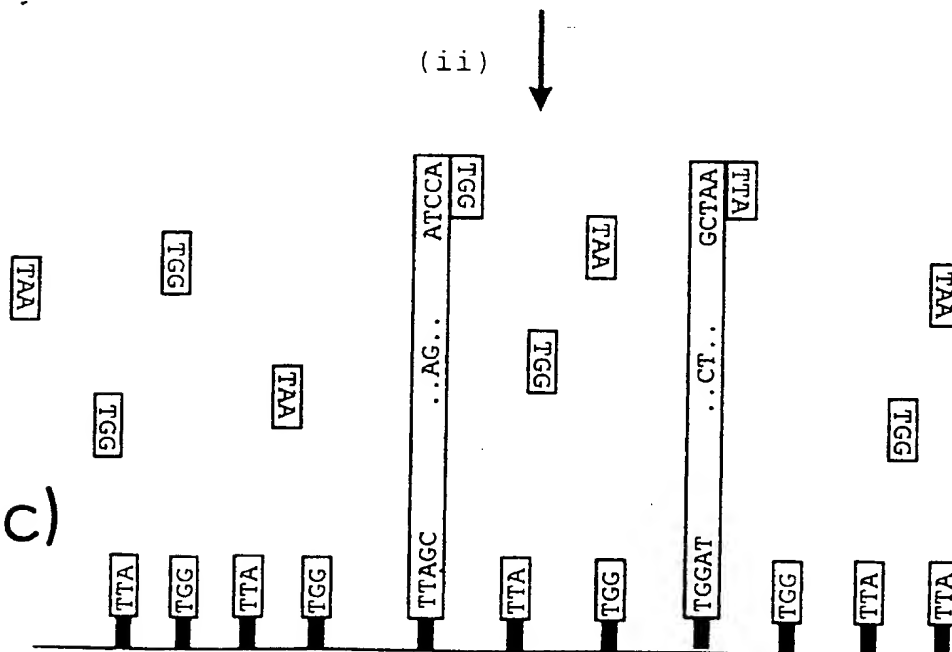
(i)

(b)



(ii)

(c)

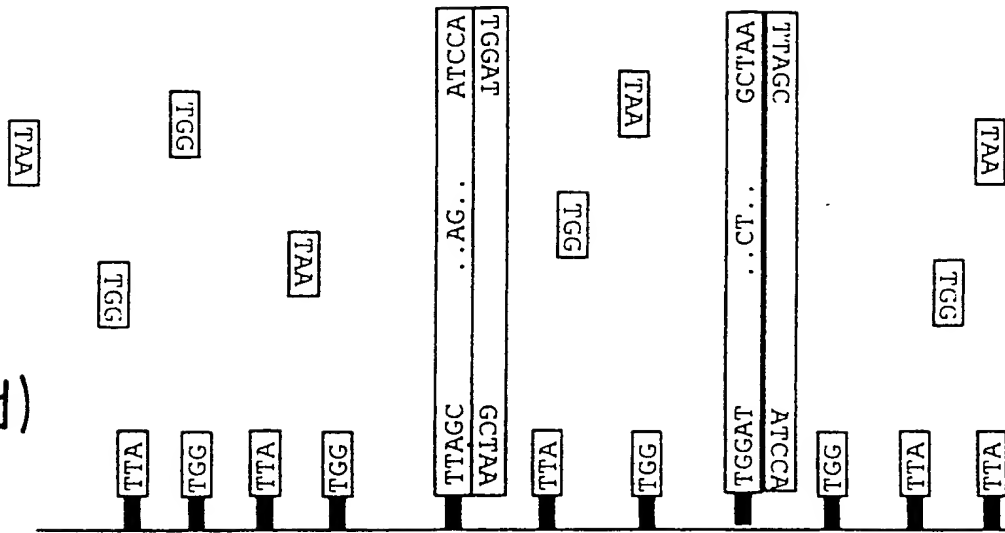


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(iii)

FIG. 8-2

(d)

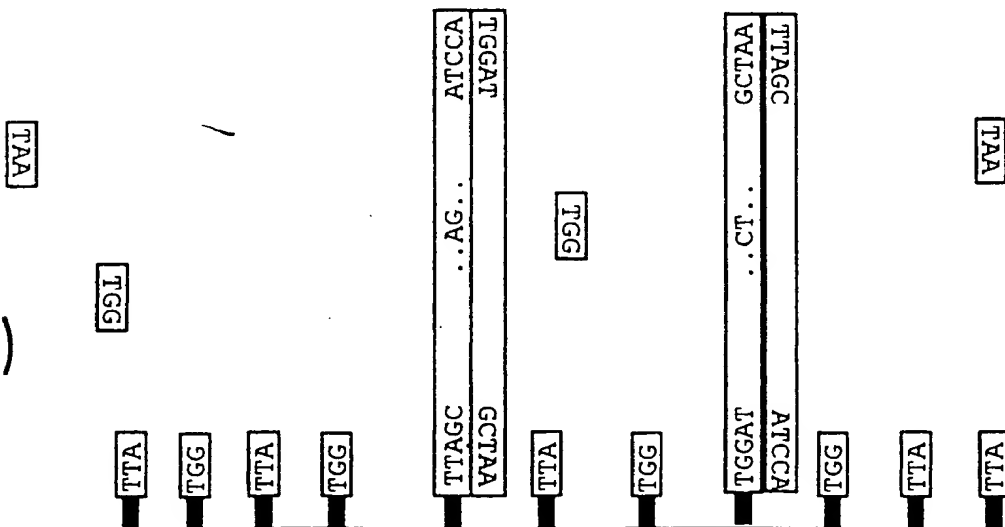


(iv)

TGGAT	..CT..	GCTAA
ATCCA	..AG..	TTAGC

TGGAT	..CT..	GCTAA
ATCCA	..AG..	TTAGC

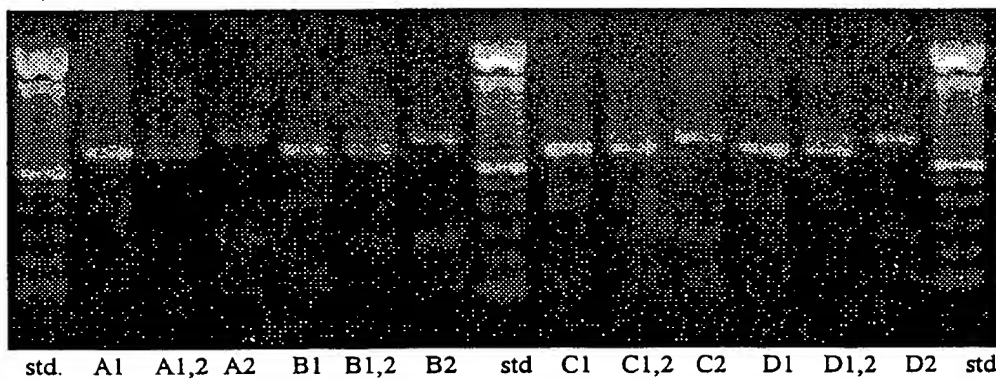
(e)



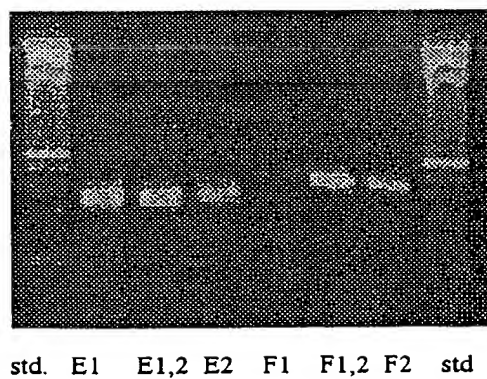
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FIG. 9

A)

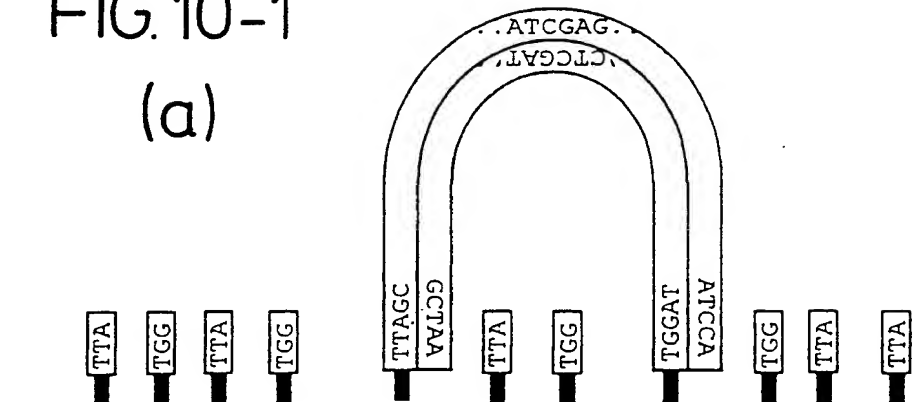


B)



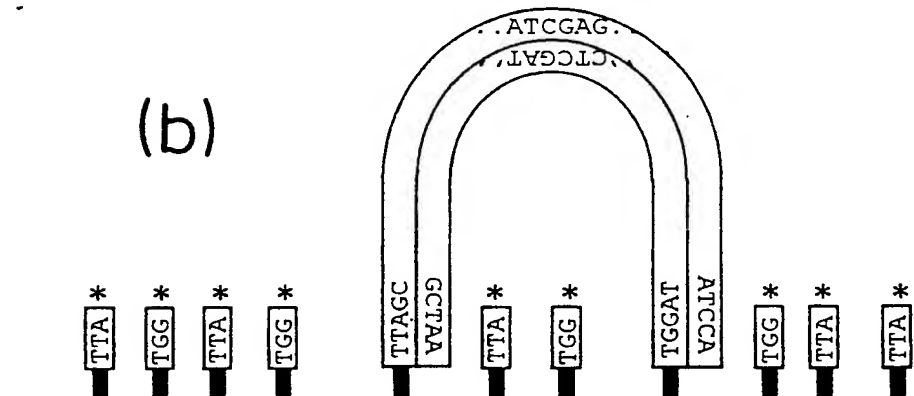
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FIG. 10-1
(a)



(i)
↓

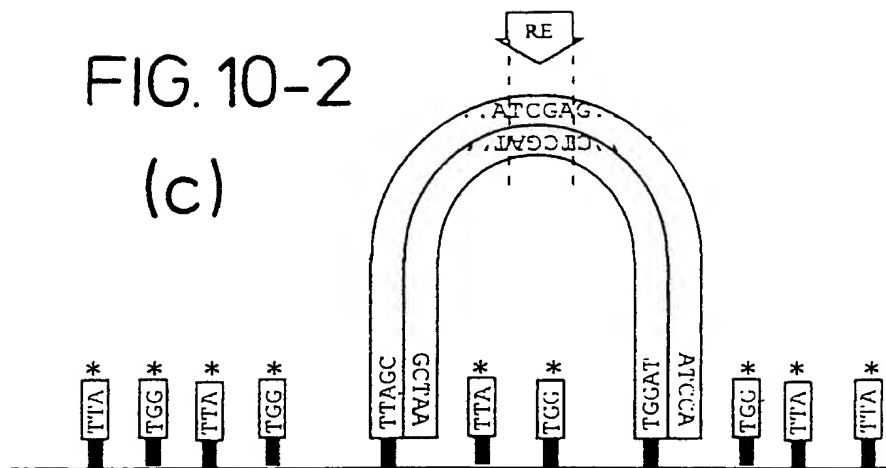
(b)



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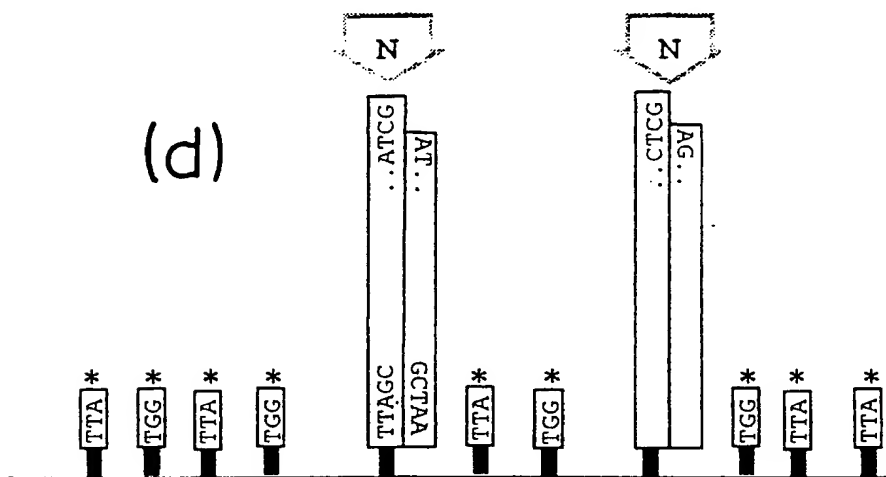
FIG. 10-2

(c)



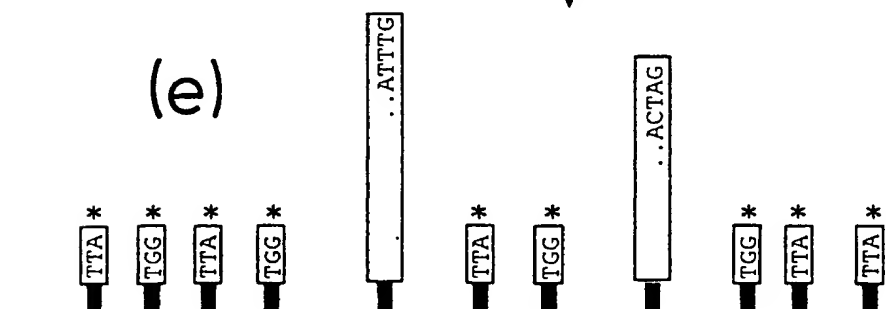
(i)

(d)



(iii)

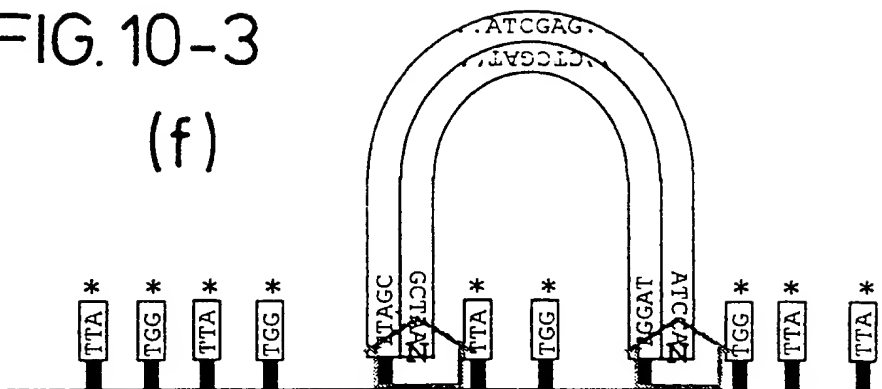
(e)



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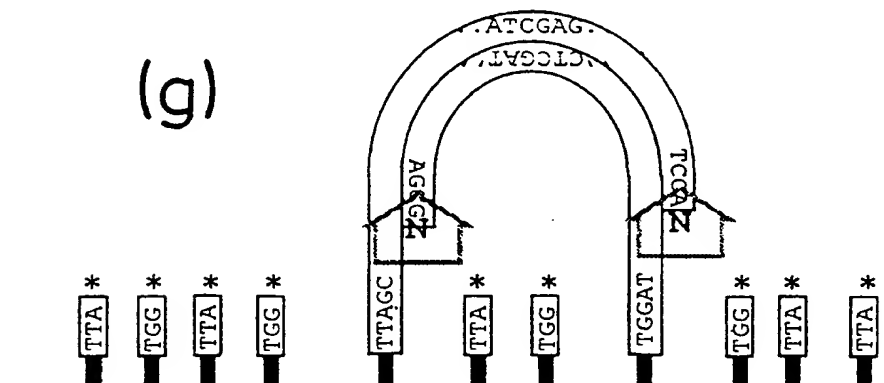
FIG. 10-3

(f)



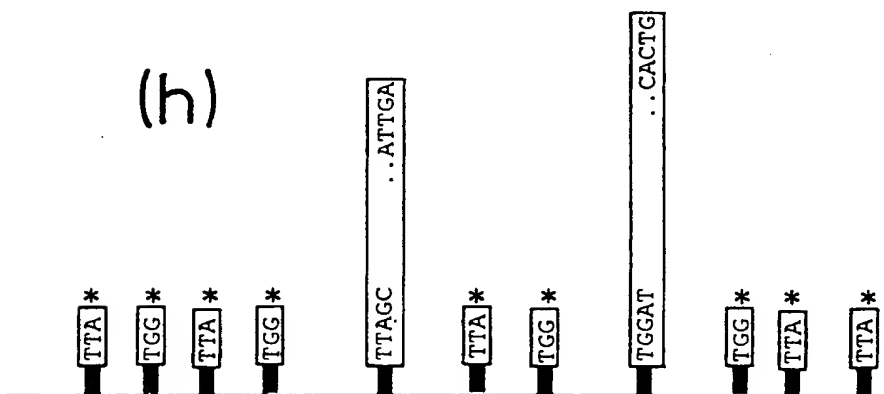
(iv)

(g)

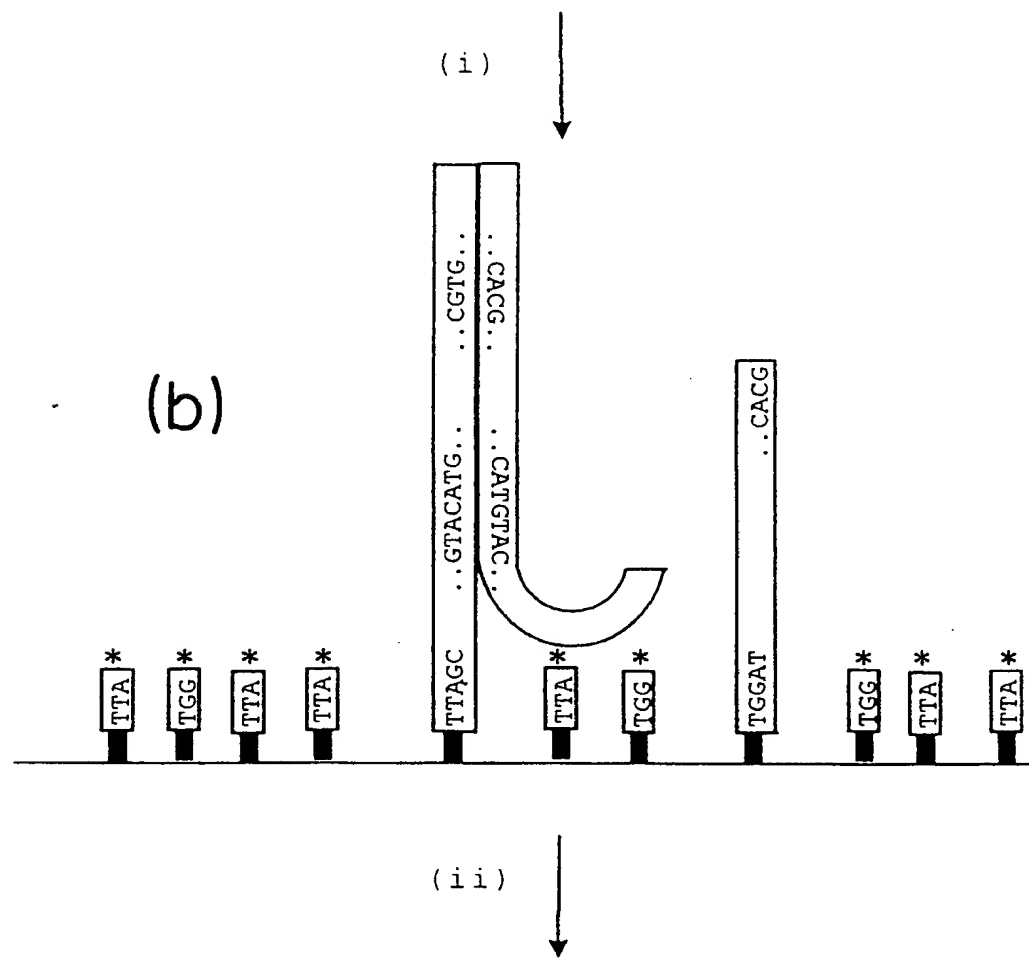
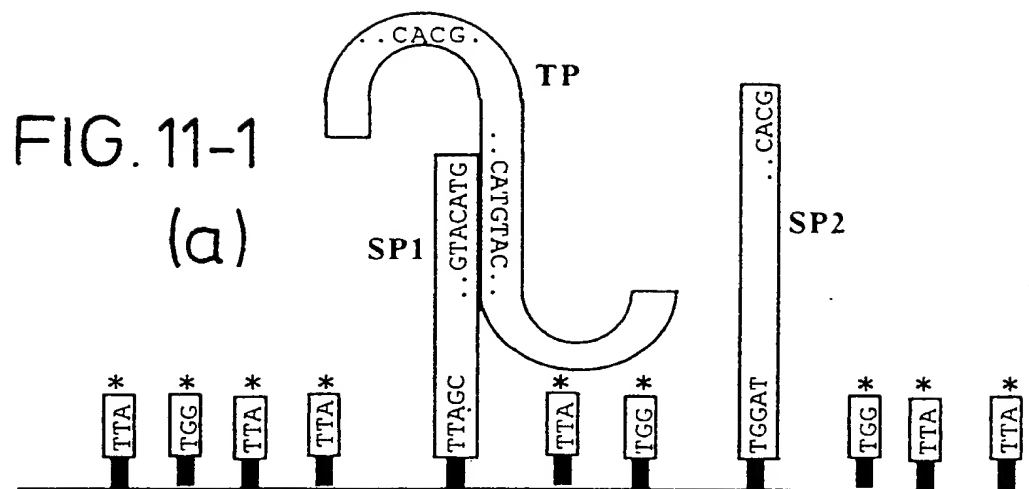


(v)

(h)



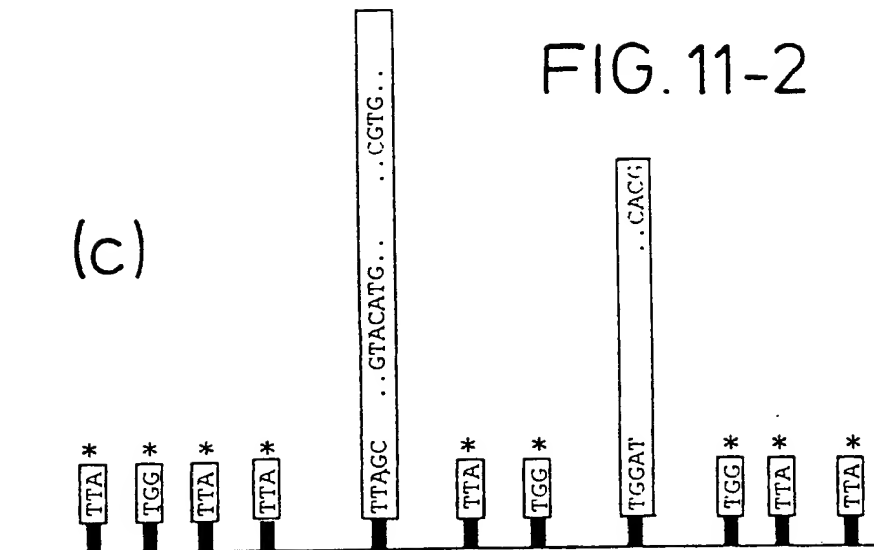
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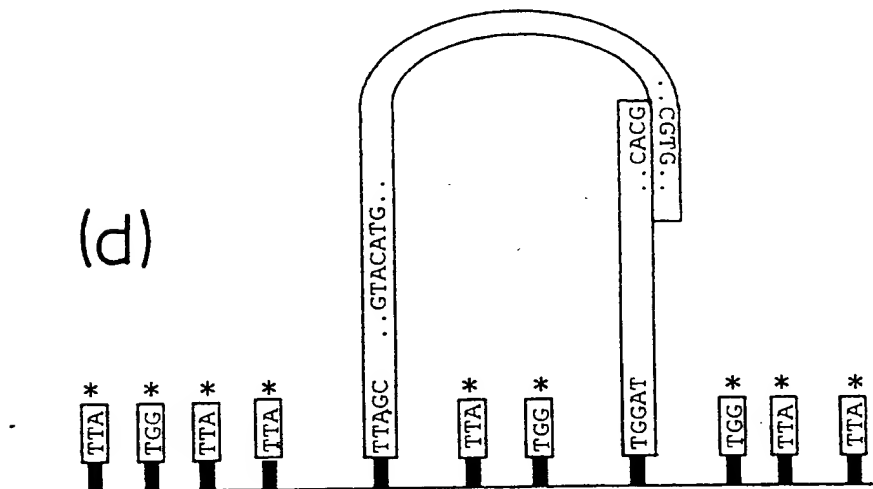
FIG. 11-2

(c)



(iii)

(d)



(iv)

(e)

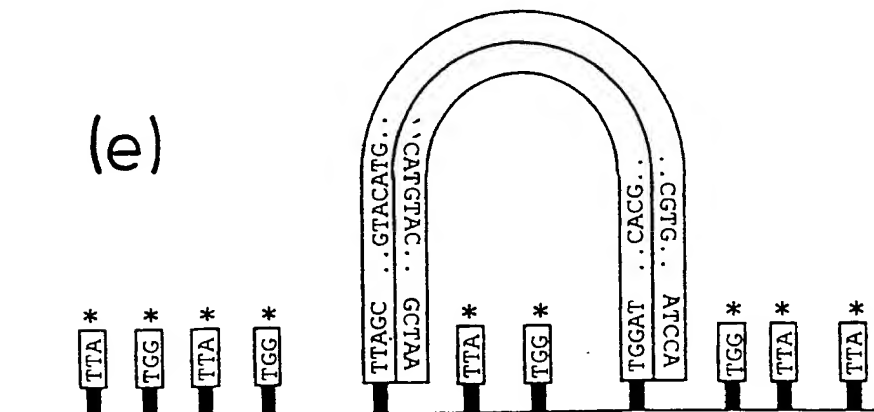
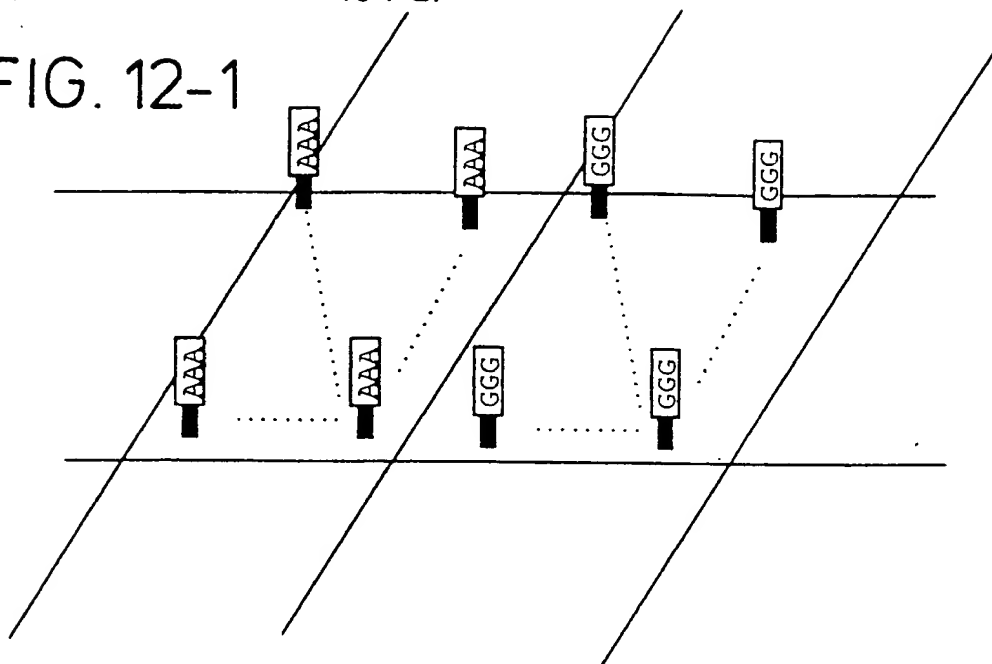


FIG. 12-1
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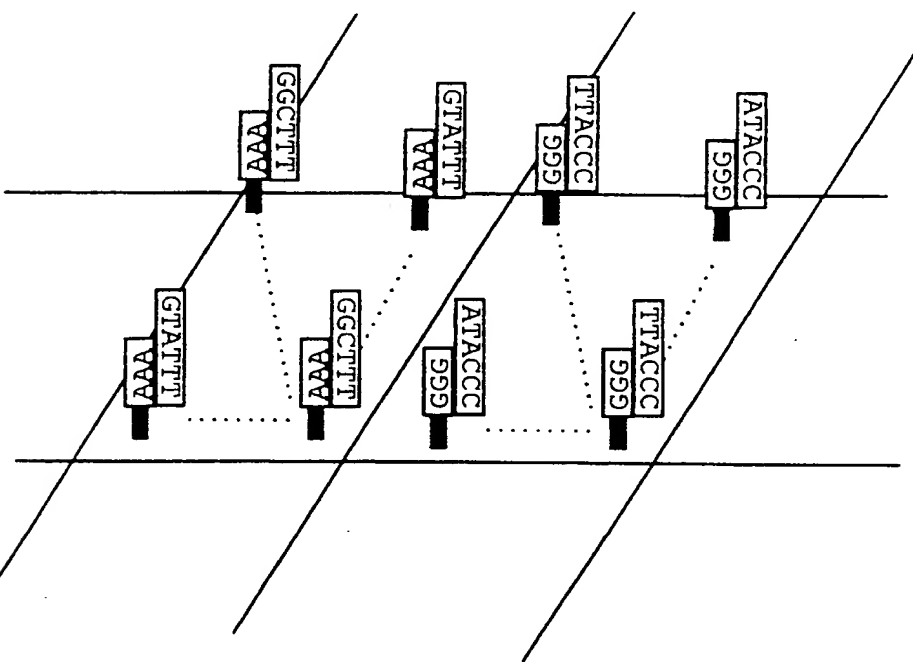
(a)



(i)



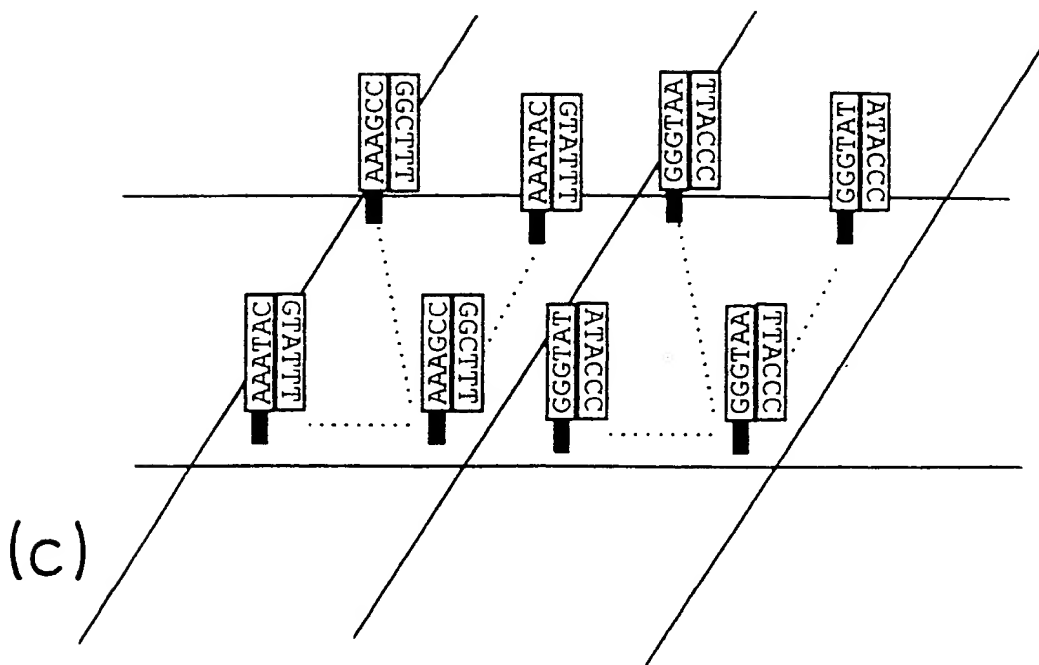
(b)



(ii)



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(iii) ↓

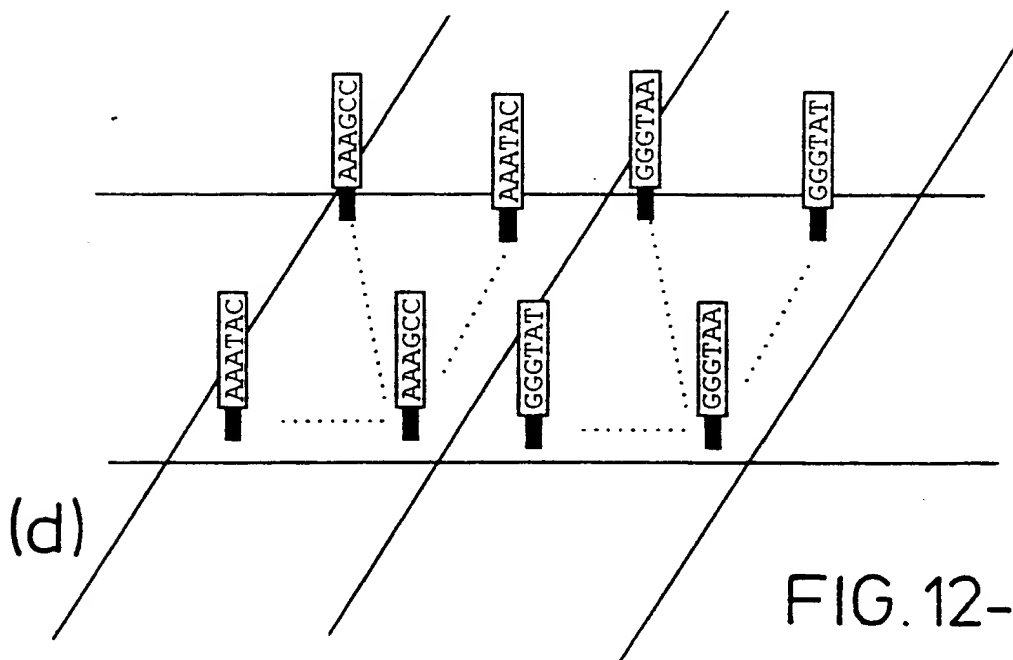


FIG.12-2

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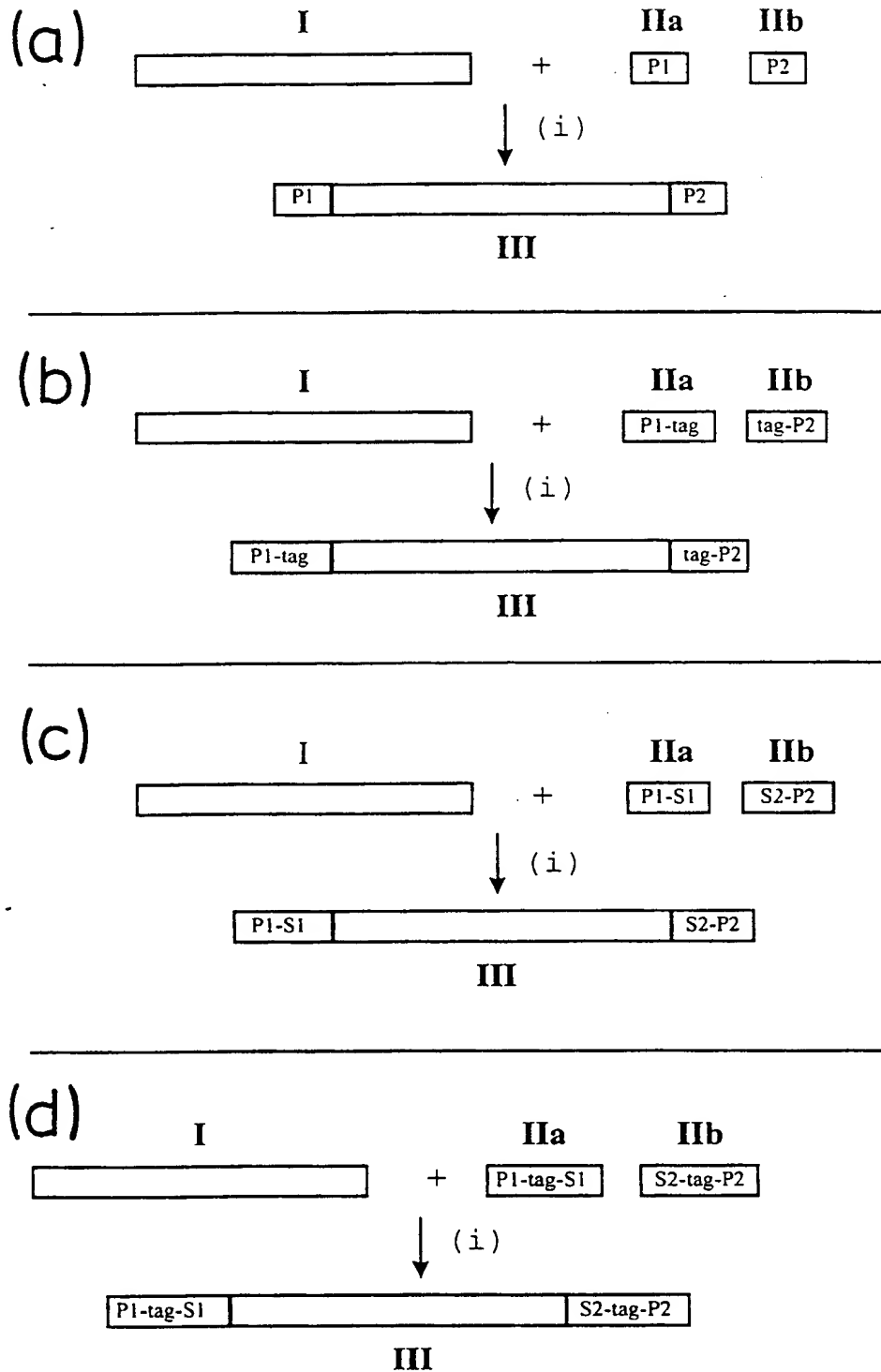


FIG. 13

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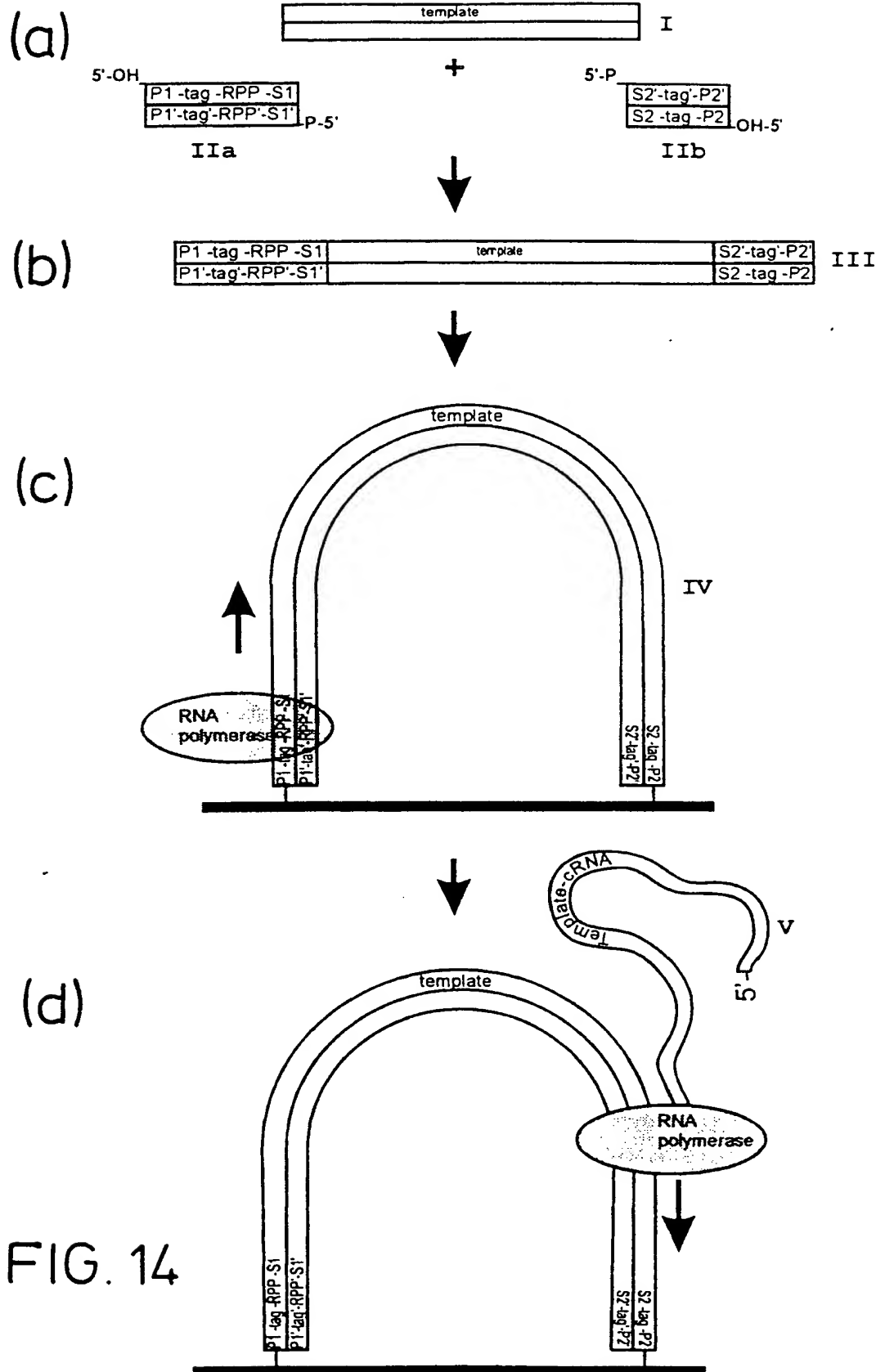
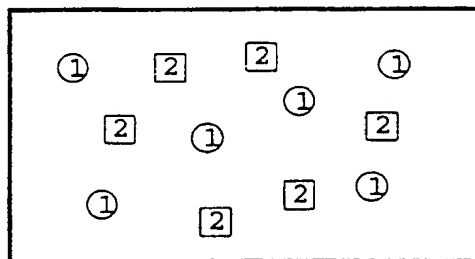


FIG. 14

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FIG. 15
in situ Sequencing

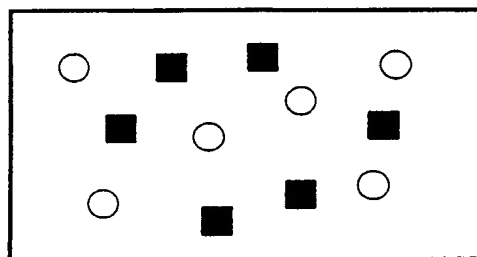
(a)



Two types of
randomly arrayed
DNA colonies

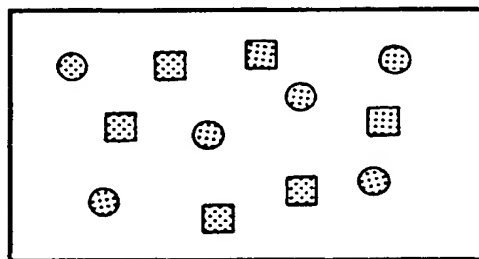
(b)

step 1
add dGTP



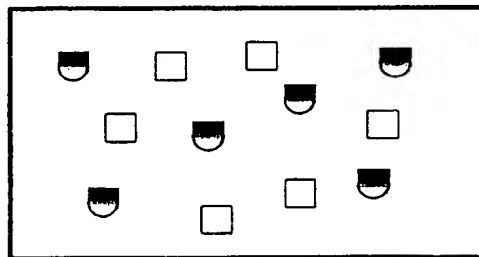
(c)

step 2
add dATP



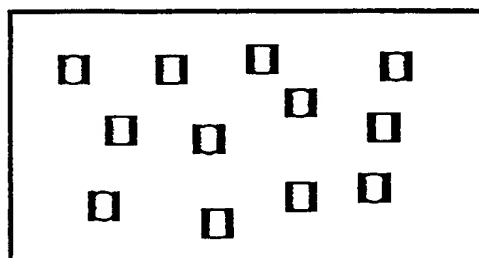
(d)

step 3
add dTTP



(e)

step 4
add dCTP



f)

1	2
	G
A	A
T	
C	C

DNA sequence:
type 1: ATC
type 2: GAC

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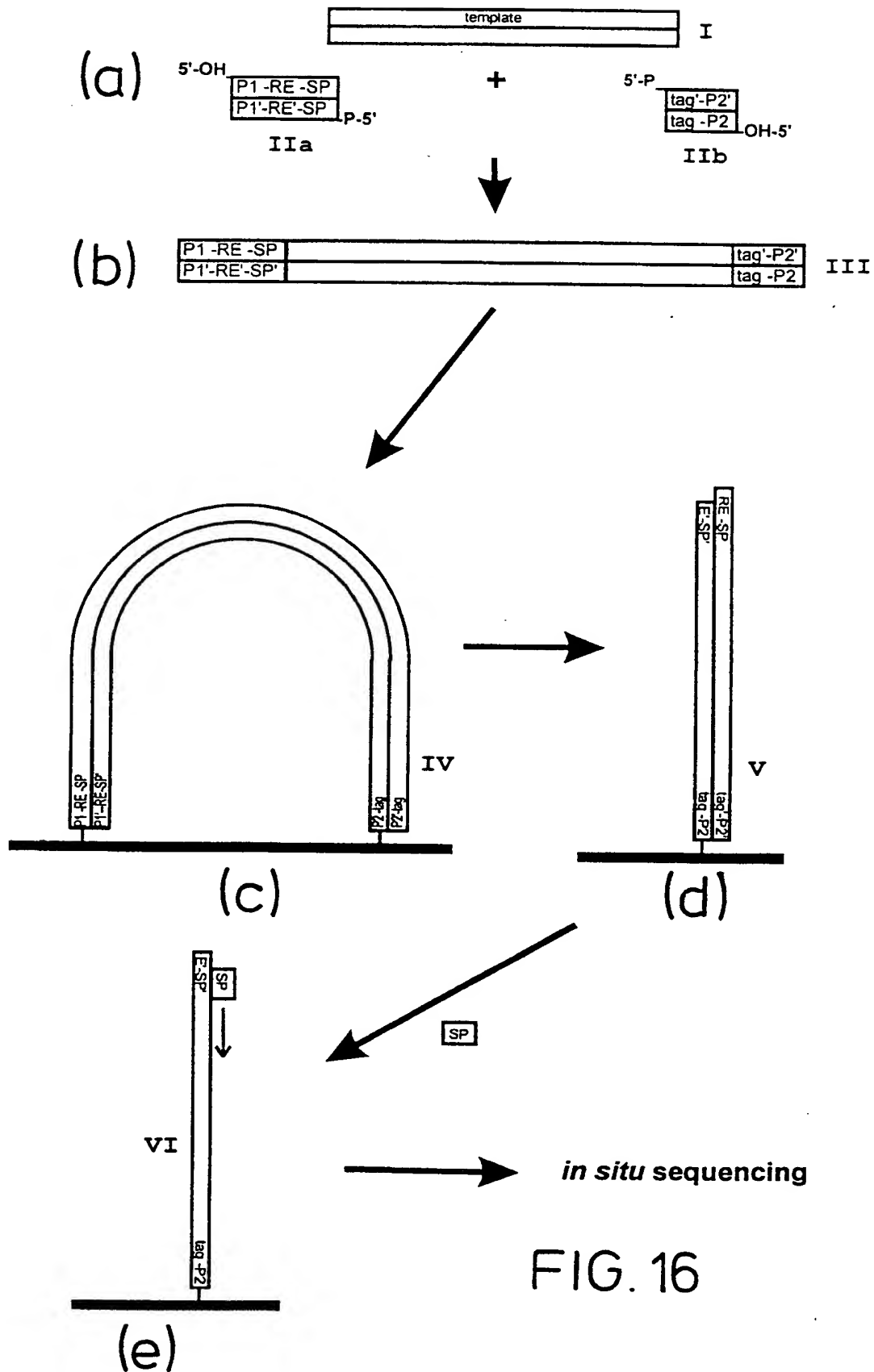
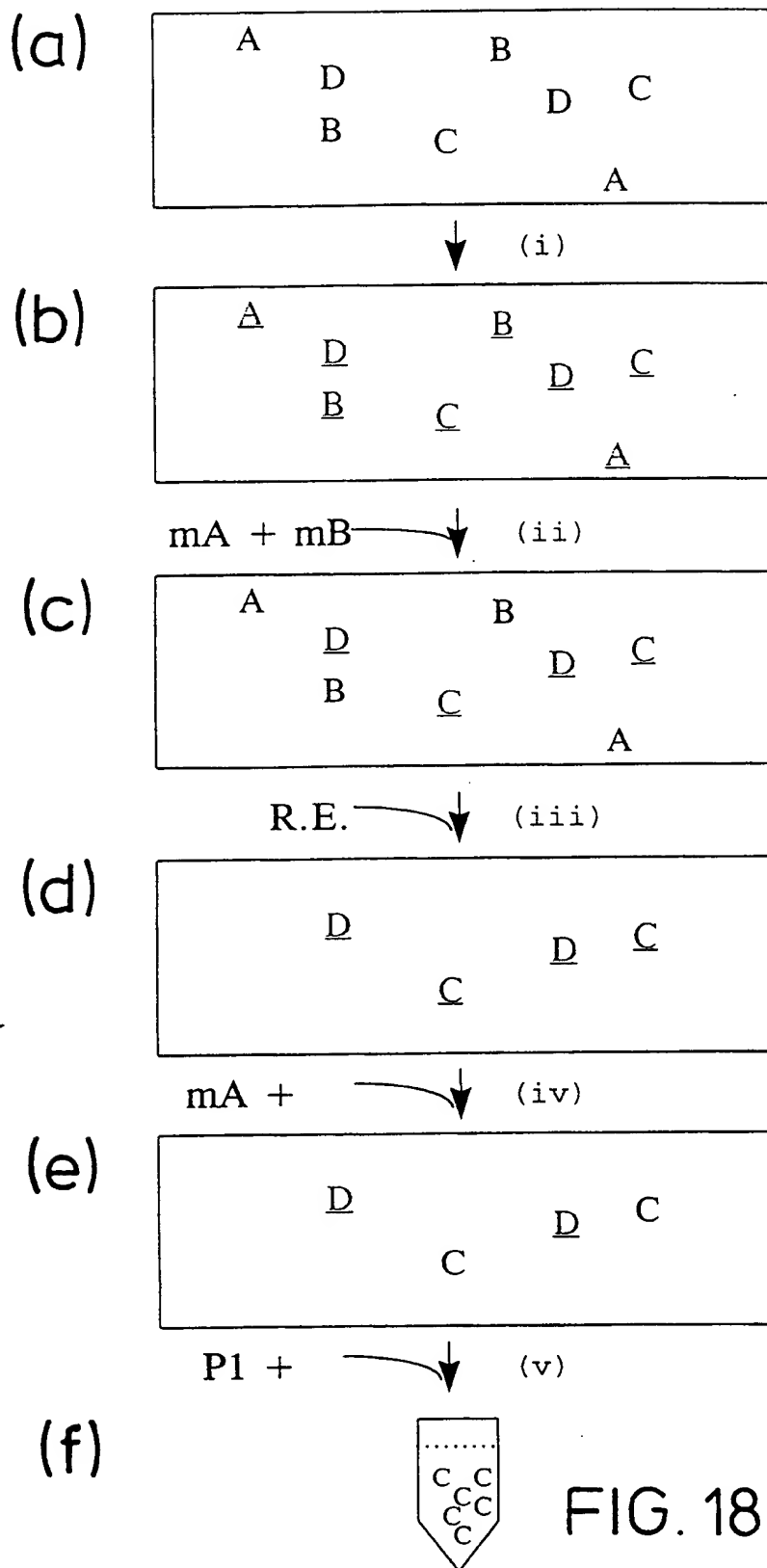


FIG. 16

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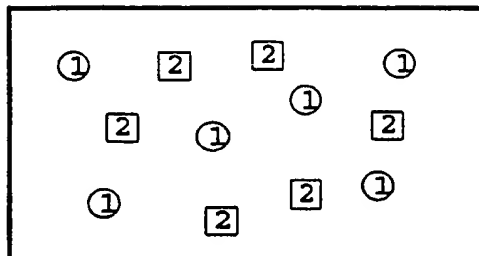




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FIG. 17
in situ Sequencing

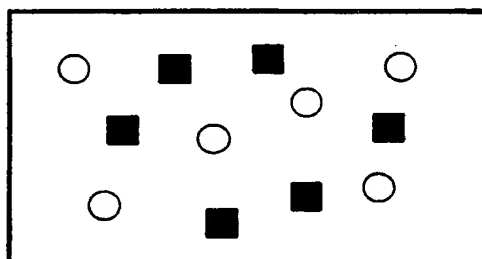
(a)



Two types of
randomly arrayed
DNA colonies

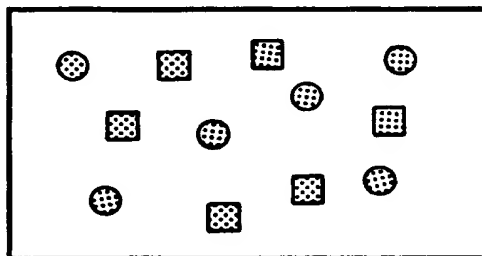
(b)

step 1
add dGTP



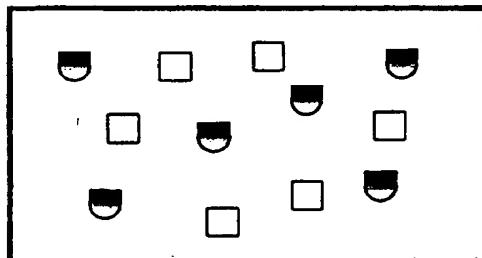
(c)

step 2
add dATP



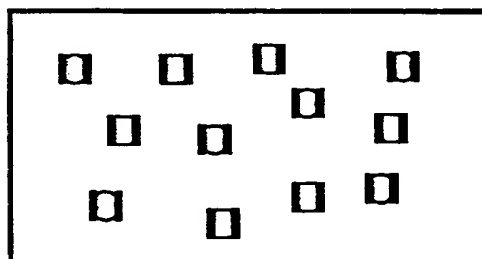
(d)

step 3
add dTTP



(e)

step 4
add dCTP



f)

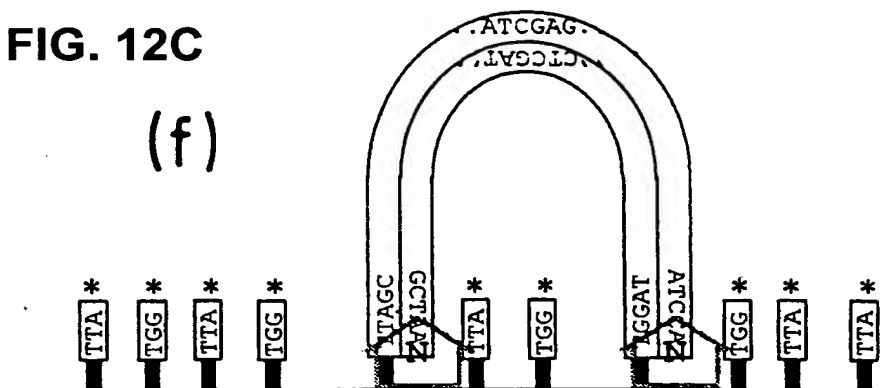
1	2
	G
A	A
T	
C	C

DNA sequence:
type 1: ATC
type 2: GAC

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FIG. 12C

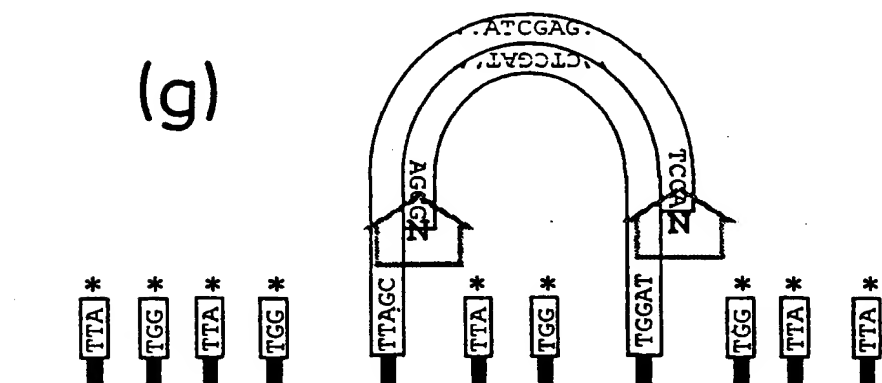
(f)



(iv)



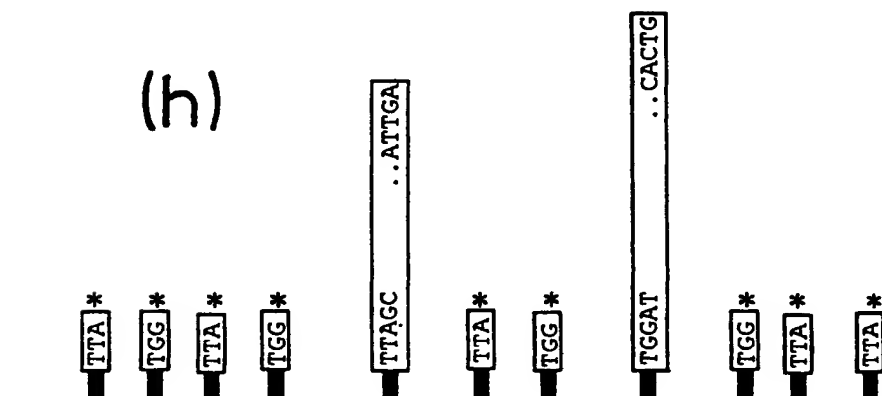
(g)



(v)



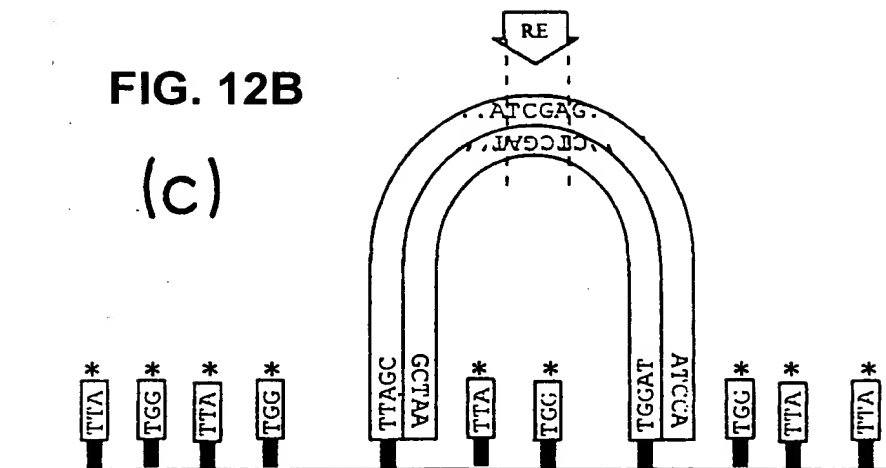
(h)



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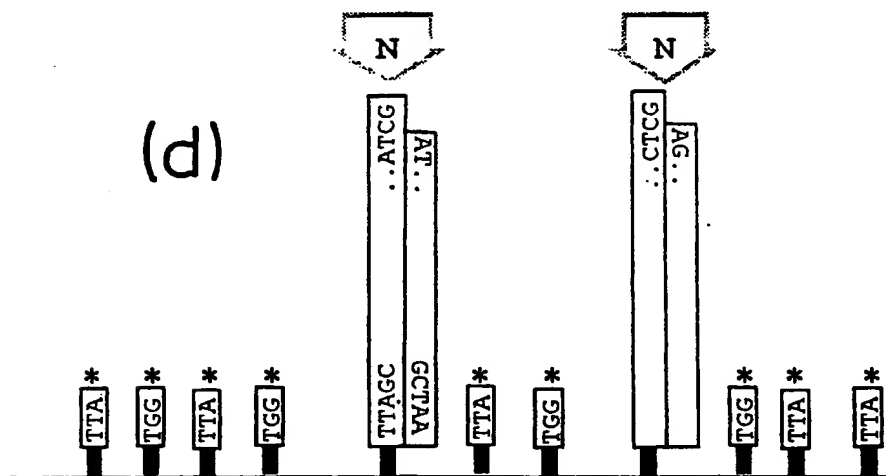
FIG. 12B

(c)



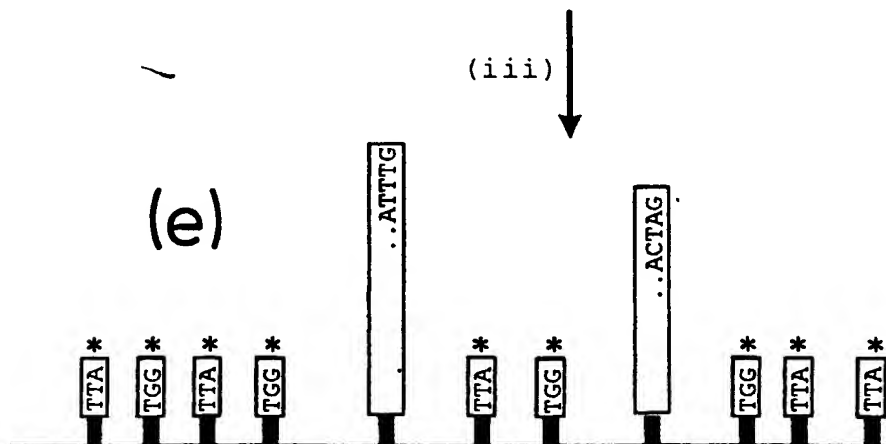
(ii)

(d)



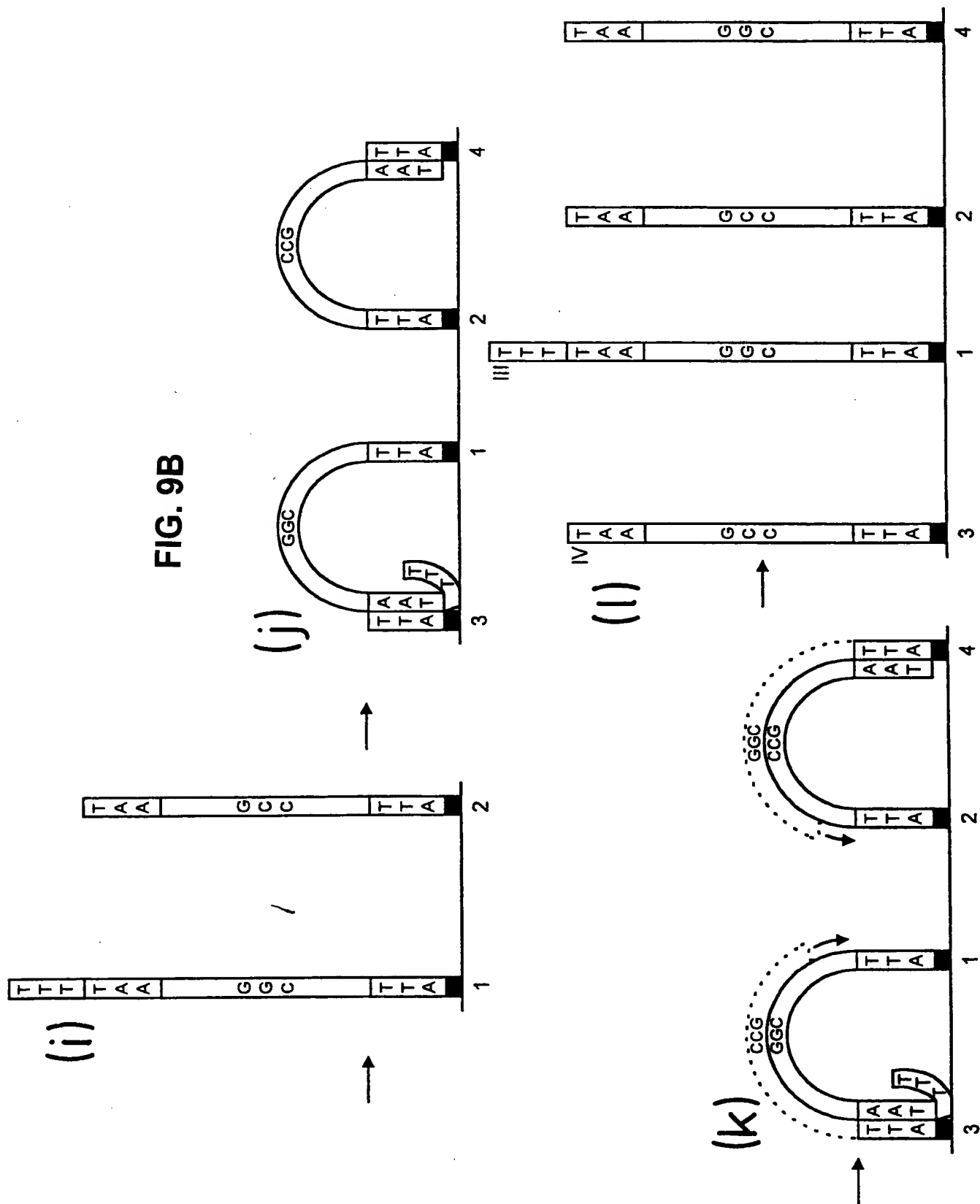
(iii)

(e)



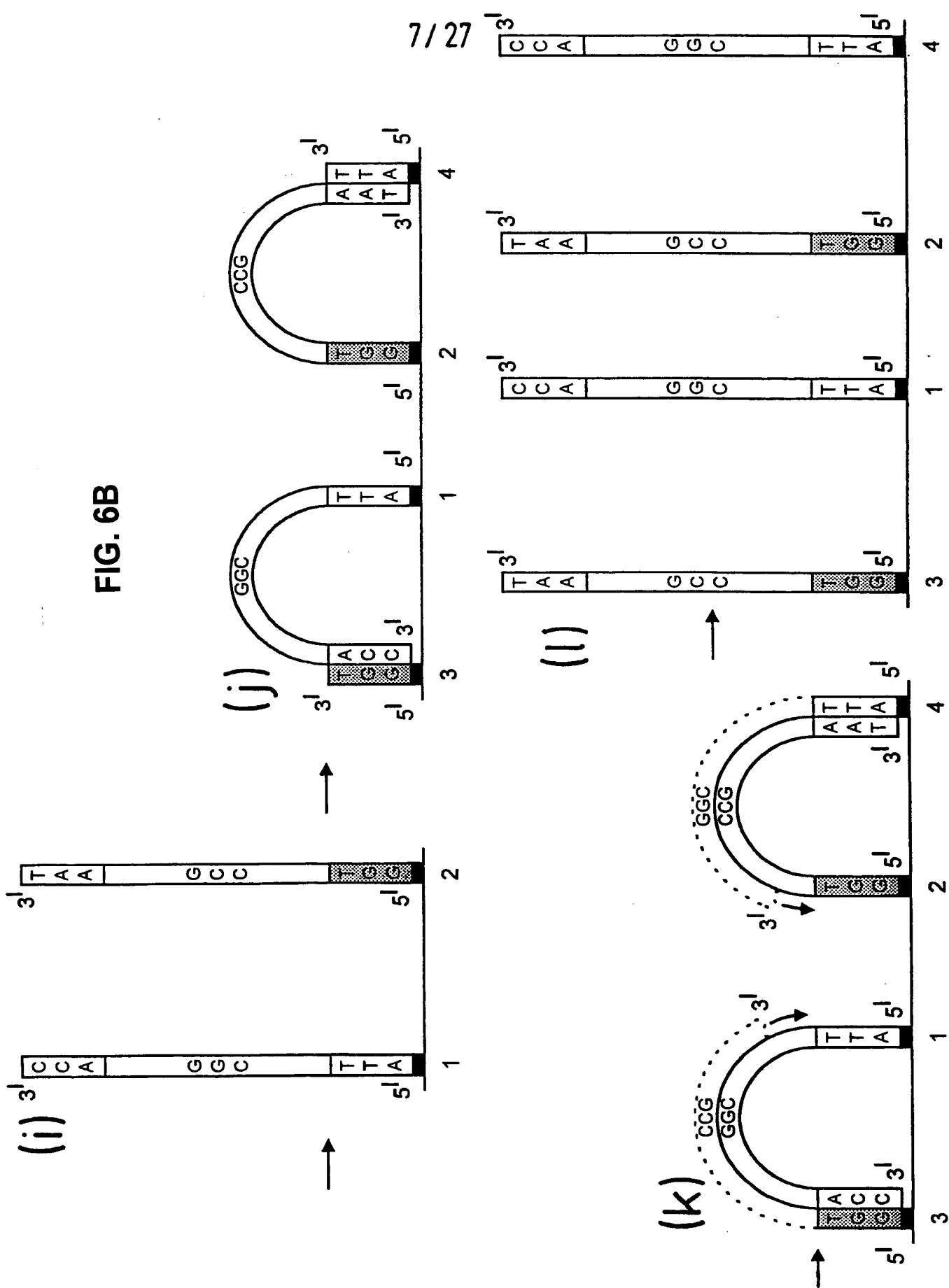
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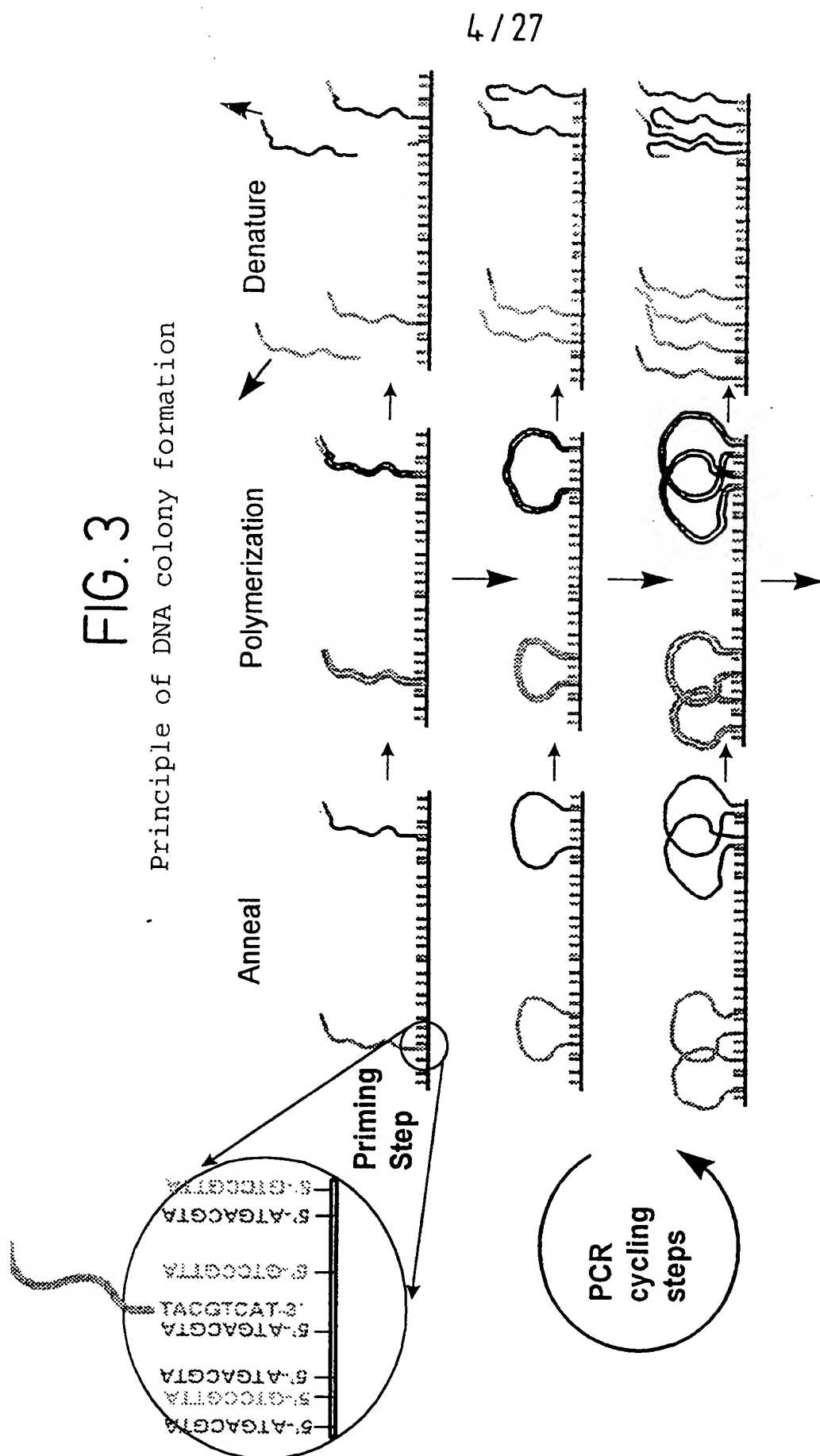
FIG. 9B



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FIG. 6B





Characteristics of DNA Colonies

- 1) Each colony is composed of identical copies (10,000 to 100,000) of the original DNA template
- 2) Colonies are 0.1 - 5 mm in size and are spaced between 5 - 50 mm apart
- 3) $\sim 10^6$ - 10^7 individual colonies / cm^2

